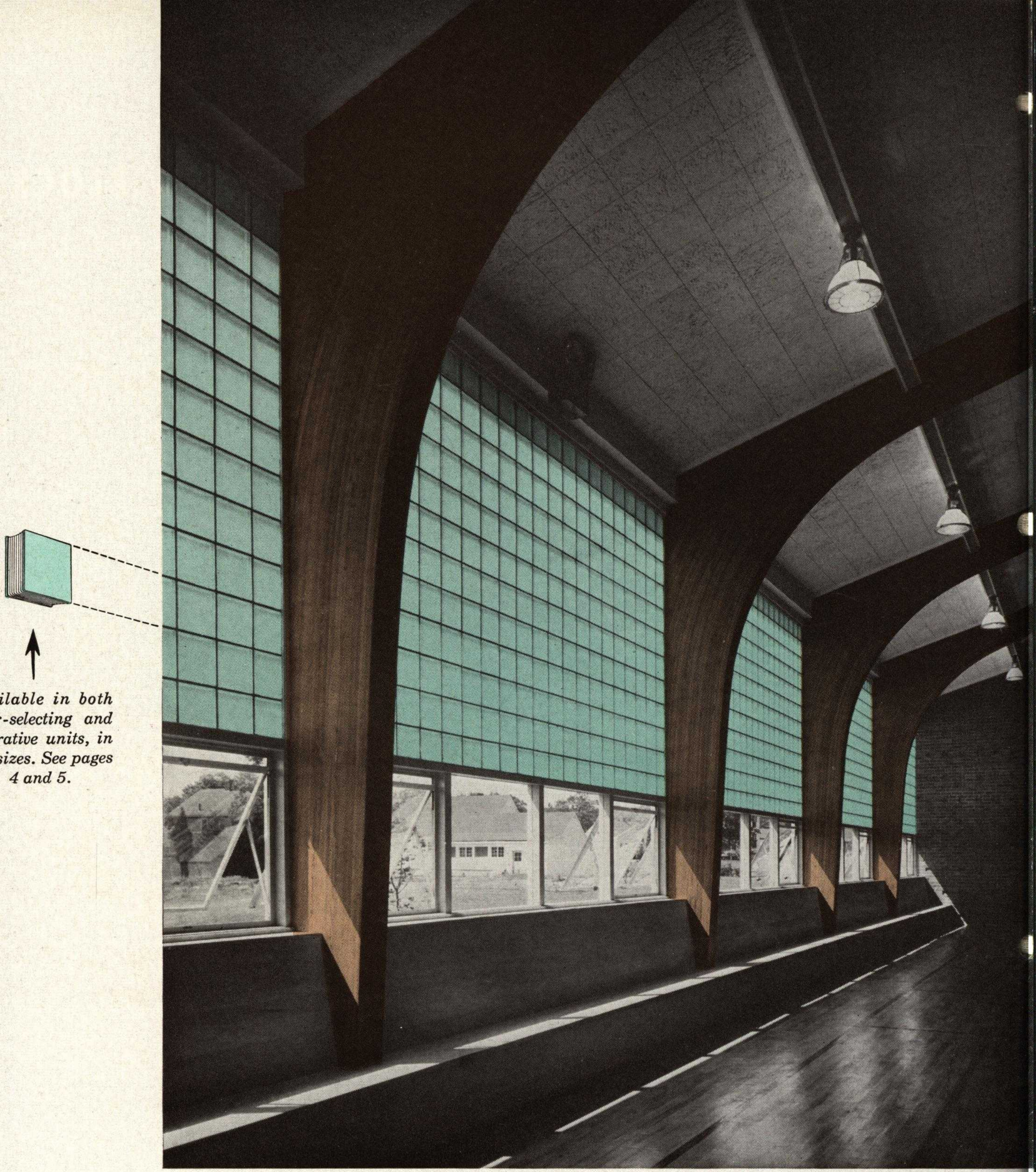
OWENS-ILLINOIS GLASS BLOCK

ARCHITECTURAL CATALOG AIA FILE 10-F

7b
Ow



Available in both solar-selecting and decorative units, in two sizes. See pages 4 and 5.

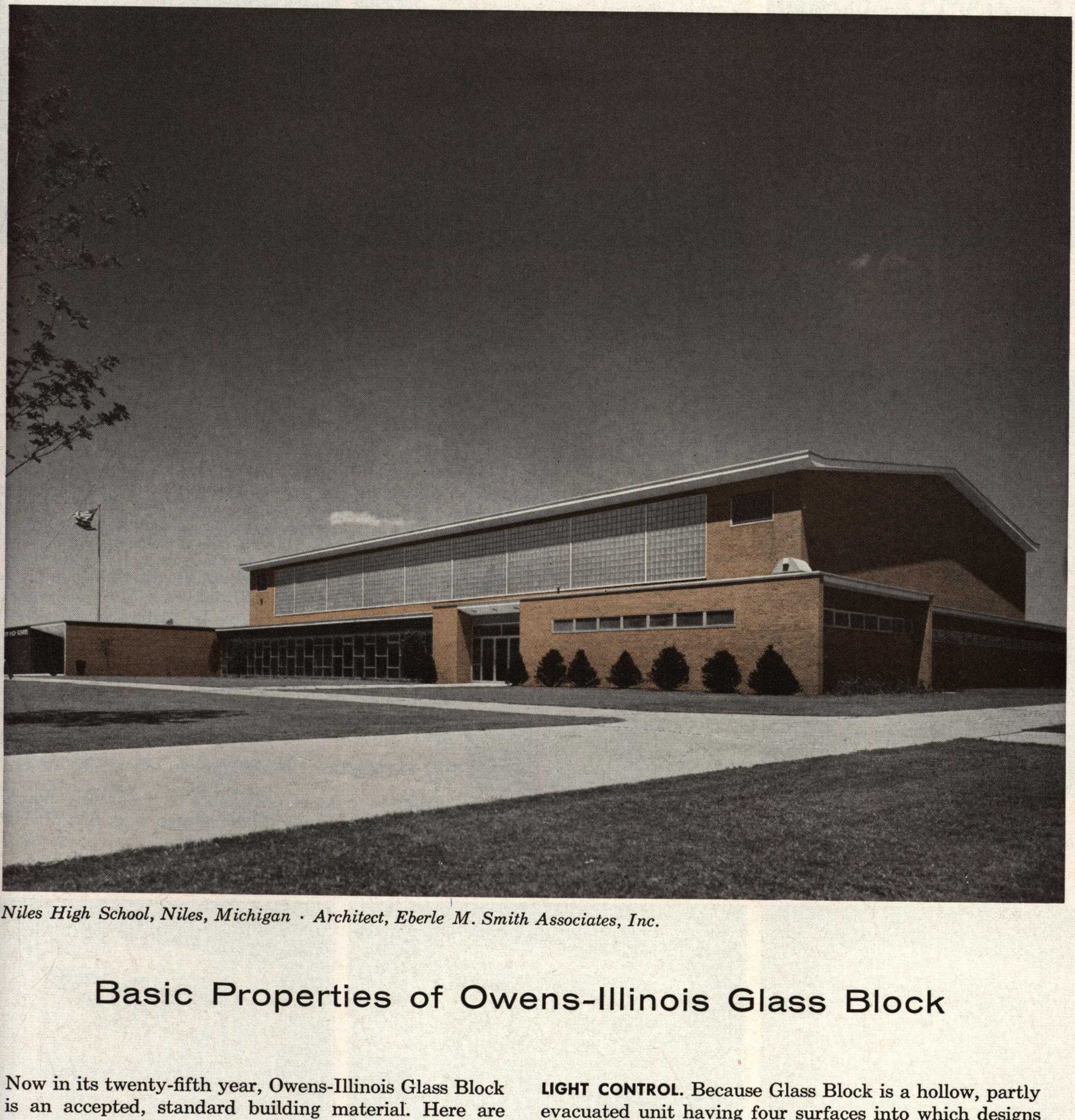
NEW! Glass Block with Color-in-the-Glass

Now . . . for the first time . . . Owens-Illinois brings you a series of glass blocks where color is added to the glass itself! An Owens-Illinois process makes it economically feasible to offer glass block in both water-clear glass and two tints of blue-green.

Daylight-controlling glass blocks are offered in a cool, eye-resting "Shade Green," and decorative units in a pleasant, blue-green "Shade Aqua."

These exciting new colors-in-the-glass, combined with ceramic accent colors, offer the architectural designer a new concept for the tried and tested, masonry-material, glass block.

K-10 50M 601 Printed in U.S.A



Niles High School, Niles, Michigan · Architect, Eberle M. Smith Associates, Inc.

Basic Properties of Owens-Illinois Glass Block

Now in its twenty-fifth year, Owens-Illinois Glass Block is an accepted, standard building material. Here are some of the reasons why:

ABSOLUTE PERMANENCE. Glass Block panels are built of durable glass and mortar—nothing to rot or corrode. Breakage is unusual, no painting is ever required.

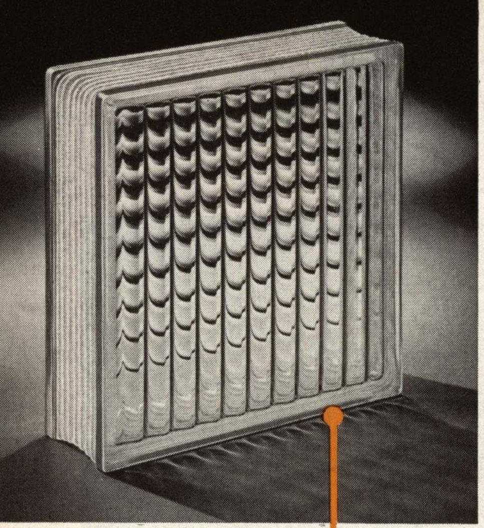
INSULATION. Glass Block's high insulation value is an advantage in both summer and winter. Heat loss in winter is less than half of that through windows. This means lower heating costs—less condensation on glass.

In summer, Glass Block transmits less than half as much solar heat as single-glazed windows.

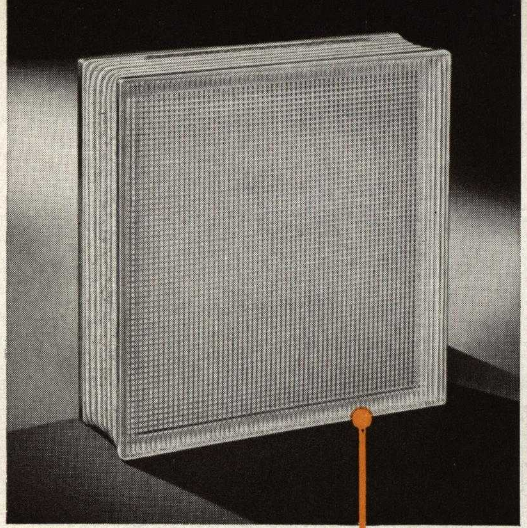
LIGHT CONTROL. Because Glass Block is a hollow, partly evacuated unit having four surfaces into which designs can be impressed, Owens-Illinois solar-selecting types offer better control of daylight than any other glass building material available to the architect today.

NOISE REDUCTION. Owens-Illinois has a sound reduction factor equal to the better class of fireproof partition.

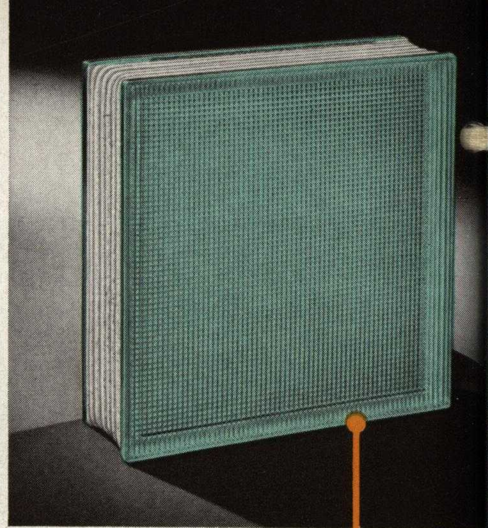
EASE OF INSTALLATION. The materials and techniques for installation make Owens-Illinois glass block as easy to install as ordinary brick. Faces of all units (except the ceramic-faced) are coated with a non-removable chemical finish which makes for easy removal of excess mortar.



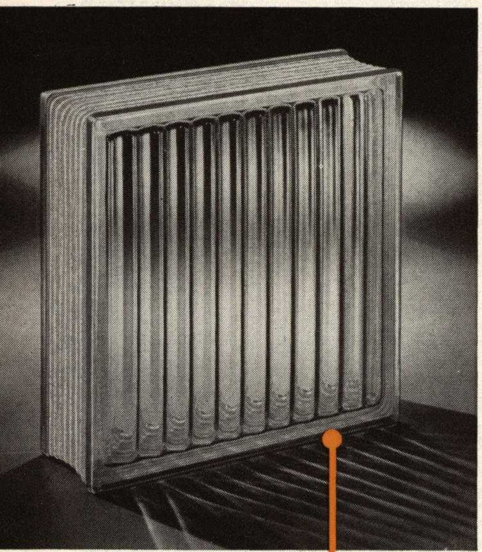
designs nos. 16 16-F



designs nos. 80 80-F



shade green 80-G 80-G



designs nos. 07 07-F

SOLAR-SELECTING

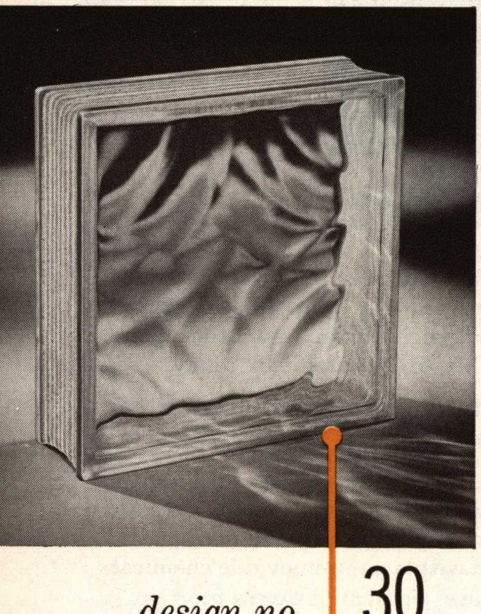
Owens-Illinois solar-selecting blocks reject sunlight when its intensity reaches a maximum. Rejecting this peak intensity of solar energy cuts brightness to a minimum, and also reduces solar heat input into a building. Distribution and diffusion of daylight is excellent.

Famous Owens-Illinois solar-selecting glass block are now available in both water-clear glass and a beautiful new green glass, *Shade Green*. These blocks can be furnished in both 8″ and 12″ sizes. Their recommended uses are as follows:

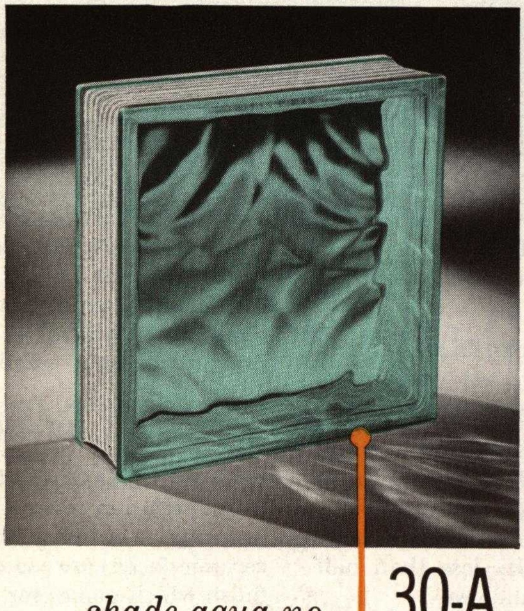
FOR SUN EXPOSURES. Use designs No. 80-F (water-clear glass) or No. 80-GF (*Shade Green* glass). Both of these designs have fiberglas diffusing screens sealed in the center of the block for maximum light control.

FOR NON-SUN EXPOSURES. Use designs No. 80 or No. 80-G.

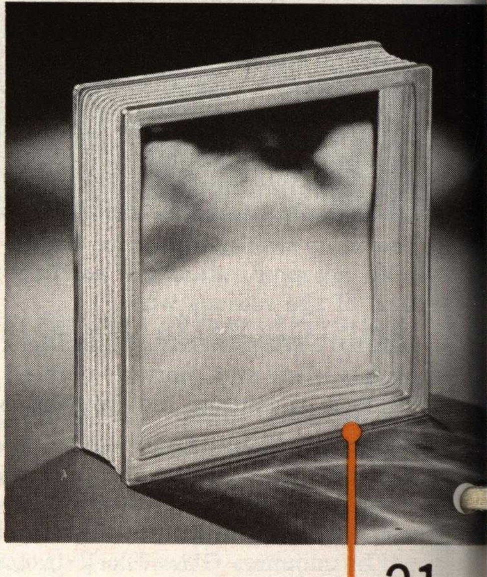
Printing limitations make it impossible to accurately portray the beauty of Owens-Illinois Shade Green and Shade Aqua glasses. Samples are available if desired.



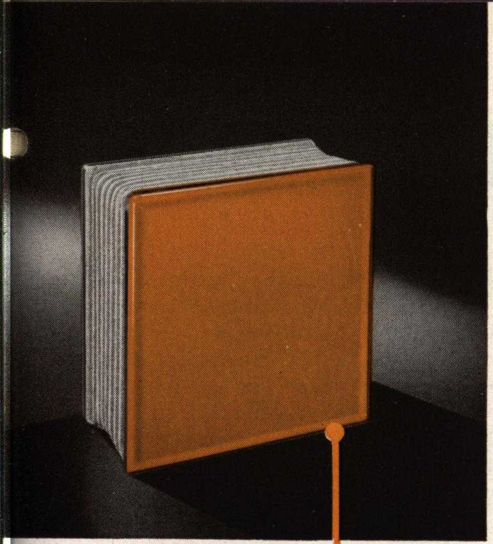
design no. 30



shade aqua no. 30-A



design no. 31



design no. **32**

CERAMIC-*faced*

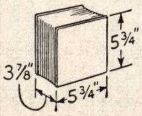
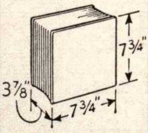
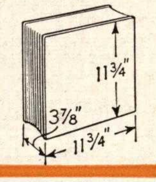
These blocks have bright, permanent ceramic colors fused on the exterior surface. While they are low in light transmission, compared to other glass block, the color does "come through." They are most often used as accent colors in panels of other block.

They are available in both 6″ and 8″ sizes in design No. 32. This design has smooth exterior faces with interior faces similar to design No. 31. They are available in the following colors:

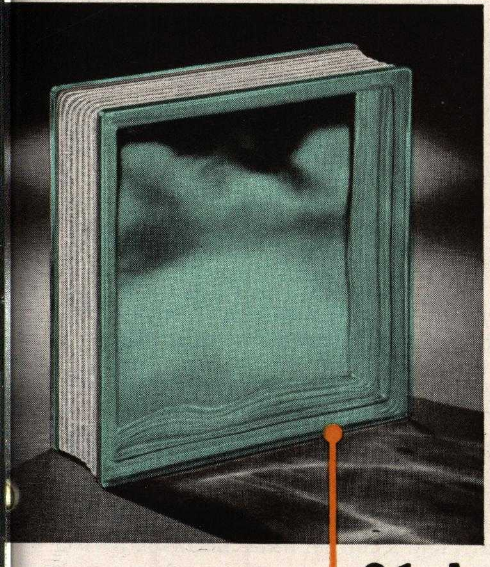
1. *Pastel Blue*
2. *Coral*
3. *Pastel Green*
4. *Charcoal Gray*
5. *Black*
6. *White*
7. *Deep Blue*
8. *Deep Green*
9. *Deep Red*
10. *Orange*
11. *Walnut*
12. *Yellow*

design, size and description

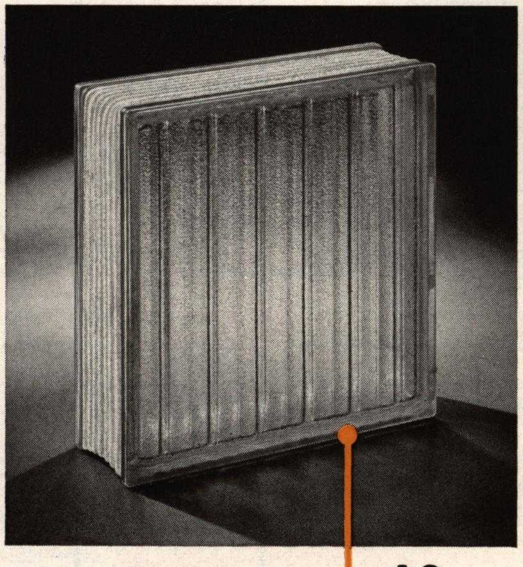
OWENS-ILLINOIS GLASS BLOCK

	ORDER BY THESE NUMBERS	SQUARE BLOCKS			DEGREE OF PRIVACY	FIBER GLASS INSERT	SMOOTH FACE	RIBBED FACE
		NOMINAL 6″  	NOMINAL 8″  	NOMINAL 12″  				
DECORATIVE	**16**	216	316	416	*Fair*		●	
	16-F		316-F		*Good*	●	●	
	07		307	407	*Limited*		●	
	07-F		307-F		*Fair*	●	●	
	30	230	330	430	*Fair*		●	
	30-A		330-A	430-A	*Good*		●	
	31		331	431	*Poor*		●	
	31-A		331-A	431-A	*Fair*		●	
	40		340	440	*Good*			●
	70		370	470	*None*		●	
CERAMIC FACE	**32**	232*	332*		*Complete*		●	
SOLAR SELECTING	**80**		380	480	*Complete*			●
	80-F		380-F	480-F	*Complete*	●		●
	80-G		380-G	480-G	*Complete*			●
	80-GF		380-GF	480-GF	*Complete*	●		●
NUMBER/CARTON		12	8	4				
POUNDS/CARTON		43	55-58	63				

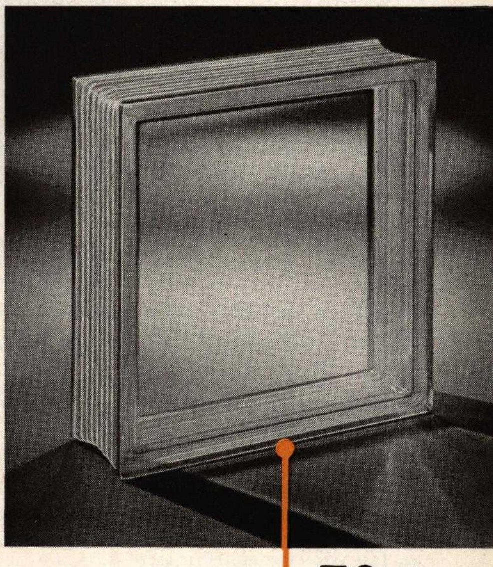
* ADD NAME OF COLOR



shade aqua no. **31-A**

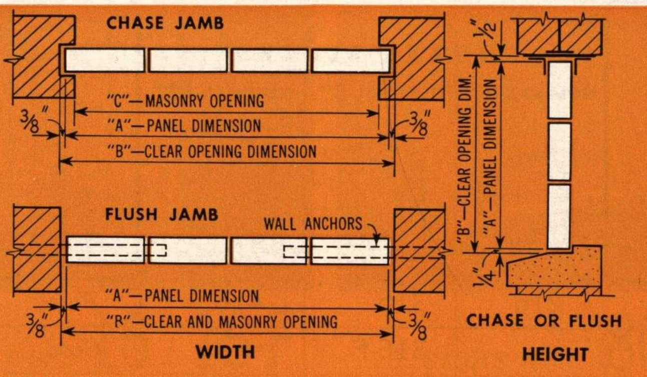


design no. **40**



design no. **70**

table of dimensions



NOTE: ADD ½" TO HEIGHT DIMENSION "B" FOR LINTEL DEFLECTION

No. of Units	5¾" SQUARE BLOCKS			7¾" SQUARE BLOCKS			11¾" SQUARE BLOCKS		
	"A"	"B"	"C"	"A"	"B"	"C"	"A"	"B"	"C"
1	5¾"	6½"	2⅜"	7¾"	8½"	4⅜"	11¾"	1'-0½"	8⅜"
2	11¾"	1'-0½"	8⅜"	1'- 3¾"	1'-4½"	1'-0⅜"	1'-11¾"	2'-0½"	1'-8⅜"
3	1'- 5¾"	1'-6½"	1'-2⅜"	1'-11¾"	2'-0½"	1'-8⅜"	2'-11¾"	3'-0½"	2'-8⅜"
4	1'-11¾"	2'-0½"	1'-8⅜"	2'- 7¾"	2'-8½"	2'-4⅜"	3'-11¾"	4'-0½"	3'-8⅜"
5	2'- 5¾"	2'-6½"	2'-2⅜"	3'- 3¾"	3'-4½"	3'-0⅜"	4'-11¾"	5'-0½"	4'-8⅜"
6	2'-11¾"	3'-0½"	2'-8⅜"	3'-11¾"	4'-0½"	3'-8⅜"	5'-11¾"	6'-0½"	5'-8⅜"
7	3'- 5¾"	3'-6½"	3'-2⅜"	4'- 7¾"	4'-8½"	4'-4⅜"	6'-11¾"	7'-0½"	6'-8⅜"
8	3'-11¾"	4'-0½"	3'-8⅜"	5'- 3¾"	5'-4½"	5'-0⅜"	7'-11¾"	8'-0½"	7'-8⅜"
9	4'- 5¾"	4'-6½"	4'-2⅜"	5'-11¾"	6'-0½"	5'-8⅜"	8'-11¾"	9'-0½"	8'-8⅜"
10	4'-11¾"	5'-0½"	4'-8⅜"	6'- 7¾"	6'-8½"	6'-4⅜"	9'-11¾"	10'-0½"	9'-8⅜"
11	5'- 5¾"	5'-6½"	5'-2⅜"	7'- 3¾"	7'-4½"	7'-0⅜"	10'-11¾"	11'-0½"	10'-8⅜"
12	5'-11¾"	6'-0½"	5'-8⅜"	7'-11¾"	8'-0½"	7'-8⅜"	11'-11¾"	12'-0½"	11'-8⅜"
13	6'- 5¾"	6'-6½"	6'-2⅜"	8'- 7¾"	8'-8½"	8'-4⅜"	12'-11¾"	13'-0½"	12'-8⅜"
14	6'-11¾"	7'-0½"	6'-8⅜"	9'- 3¾"	9'-4½"	9'-0⅜"	13'-11¾"	14'-0½"	13'-8⅜"
15	7'- 5¾"	7'-6½"	7'-2⅜"	9'-11¾"	10'-0½"	9'-8⅜"	14'-11¾"	15'-0½"	14'-8⅜"
16	7'-11¾"	8'-0½"	7'-8⅜"	10'- 7¾"	10'-8½"	10'-4⅜"	15'-11¾"	16'-0½"	15'-8⅜"
17	8'- 5¾"	8'-6½"	8'-2⅜"	11'- 3¾"	11'-4½"	11'-0⅜"	16'-11¾"	17'-0½"	16'-8⅜"
18	8'-11¾"	9'-0½"	8'-8⅜"	11'-11¾"	12'-0½"	11'-8⅜"	17'-11¾"	18'-0½"	17'-8⅜"
19	9'- 5¾"	9'-6½"	9'-2⅜"	12'- 7¾"	12'-8½"	12'-4⅜"	18'-11¾"	19'-0½"	18'-8⅜"
20	9'-11¾"	10'-0½"	9'-8⅜"	13'- 3¾"	13'-4½"	13'-0⅜"	19'-11¾"	20'-0½"	19'-8⅜"
21	10'- 5¾"	10'-6½"	10'-2⅜"	13'-11¾"	14'-0½"	13'-8⅜"	20'-11¾"	21'-0½"	20'-8⅜"
22	10'-11¾"	11'-0½"	10'-8⅜"	14'- 7¾"	14'-8½"	14'-4⅜"	21'-11¾"	22'-0½"	21'-8⅜"
23	11'- 5¾"	11'-6½"	11'-2⅜"	15'- 3¾"	15'-4½"	15'-0⅜"	22'-11¾"	23'-0½"	22'-8⅜"
24	11'-11¾"	12'-0½"	11'-8⅜"	15'-11¾"	16'-0½"	15'-8⅜"	23'-11¾"	24'-0½"	23'-8⅜"
25	12'- 5¾"	12'-6½"	12'-2⅜"	16'- 7¾"	16'-8½"	16'-4⅜"	24'-11¾"	25'-0½"	24'-8⅜"
26	12'-11¾"	13'-0½"	12'-8⅜"	17'- 3¾"	17'-4½"	17'-0⅜"			
27	13'- 5¾"	13'-6½"	13'-2⅜"	17'-11¾"	18'-0½"	17'-8⅜"			
28	13'-11¾"	14'-0½"	13'-8⅜"	18'- 7¾"	18'-8½"	18'-4⅜"			
29	14'- 5¾"	14'-6½"	14'-2⅜"	19'- 3¾"	19'-4½"	19'-0⅜"			
30	14'-11¾"	15'-0½"	14'-8⅜"	19'-11¾"	20'-0½"	19'-8⅜"			
31	15'- 5¾"	15'-6½"	15'-2⅜"	20'- 7¾"	20'-8½"	20'-4⅜"			
32	15'-11¾"	16'-0½"	15'-8⅜"	21'- 3¾"	21'-4½"	21'-0⅜"			
33	16'- 5¾"	16'-6½"	16'-2⅜"	21'-11¾"	22'-0½"	21'-8⅜"			
34	16'-11¾"	17'-0½"	16'-8⅜"	22'- 7¾"	22'-8½"	22'-4⅜"			
35	17'- 5¾"	17'-6½"	17'-2⅜"	23'- 3¾"	23'-4½"	23'-0⅜"			
36	17'-11¾"	18'-0½"	17'-8⅜"	23'-11¾"	24'-0½"	23'-8⅜"			
37	18'- 5¾"	18'-6½"	18'-2⅜"	24'- 7¾"	24'-8½"	24'-4⅜"			
38	18'-11¾"	19'-0½"	18'-8⅜"	25'- 3¾"	25'-4½"	25'-0⅜"			
39	19'- 5¾"	19'-6½"	19'-2⅜"						
40	19'-11¾"	20'-0½"	19'-8⅜"						
41	20'- 5¾"	20'-6½"	20'-2⅜"						
42	20'-11¾"	21'-0½"	20'-8⅜"						
43	21'- 5¾"	21'-6½"	21'-2⅜"						
44	21'-11¾"	22'-0½"	21'-8⅜"						
45	22'- 5¾"	22'-6½"	22'-2⅜"						
46	22'-11¾"	23'-0½"	22'-8⅜"						
47	23'- 5¾"	23'-6½"	23'-2⅜"						
48	23'-11¾"	24'-0½"	23'-8⅜"						
49	24'- 5¾"	24'-6½"	24'-2⅜"						
50	24'-11¾"	25'-0½"	24'-8⅜"						

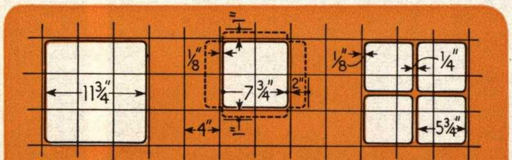
Chase Construction

Maximum Panel Length......25 Ft.
Maximum Panel Height......20 Ft.
Maximum Panel Area 144 Square Ft.

Wall Anchor Construction

Maximum Panel Length......10 Ft.
Maximum Panel Height......10 Ft.
Maximum Panel Area 100 Square Ft.

All Mortar Joints are ¼"



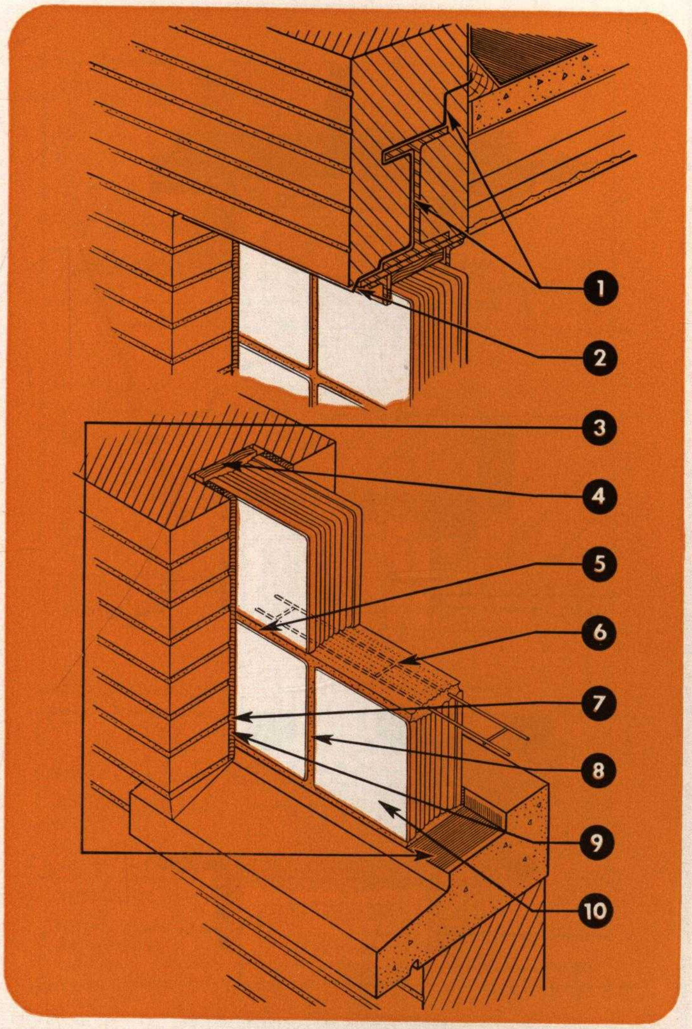
Glass Block is a modular product. Vertically, the panels may be 1" above or below the grid lines depending upon head and sill details used. Horizontally, panels may be on the grid lines or centered between, depending upon jamb details.

curved panel laying radii

Square blocks of nominal six-inch, eight-inch or twelve-inch size can be laid to several radii by varying the thickness of the mortar joints. The table below shows the radii which can be laid when the inside joint thickness is not less than one-eighth inch and the outside joint thickness is not over three-quarters inch. The number of blocks shown is for a ninety-degree arc.

	Outside Radius	Number of Units	Joint Thickness	
			Inside	Outside
7¾" BLOCKS	5'-9" Min.	13	⅛"	⅝"
	6'-4"	14	⅜"	¾"
	6'-8"	15	¼"	⅝"
	7'-0"	16	⅛"	½"
	7'-5"	17	⅛"	7/16"
	7'-8"	17	7/16"	¾"
	8'-0"	18	5/16"	⅝"
	8'-4"	19	¼"	½"
	No Max.	—	—	—
5¾" BLOCKS	4'-3" Min.	13	⅛"	⅝"
	4'-8"	14	⅛"	½"
	5'-0"	15	⅛"	½"
	5'-4"	16	⅛"	½"
	5'-8"	17	3/16"	½"
	6'-0"	18	3/16"	½"
	6'-4"	19	3/16"	½"
	6'-8"	20	¼"	½"
	7'-0"	21	¼"	½"
	7'-4"	22	¼"	½"
	No Max.	—	—	—
11¾" BLOCKS	8'-6" Min.	13	⅛"	⅝"
	No Max.	—	—	—

how to install



① Install through-wall flashing in all masonry walls above glass block.

② Drip flashing to exterior.

③ Apply a coat of O-I Asphalt Emulsion to the sill.

④ Install O-I Expansion Strips at jambs and heads of openings.

⑤ Lay glass block, using full mortar joints. Mortar mix 1 part Portland Cement, 1 part hydrated lime and 4 parts sand to a stiff consistency.

⑥ Install O-I Wall Ties continuous in horizontal joints 24″ o.c.

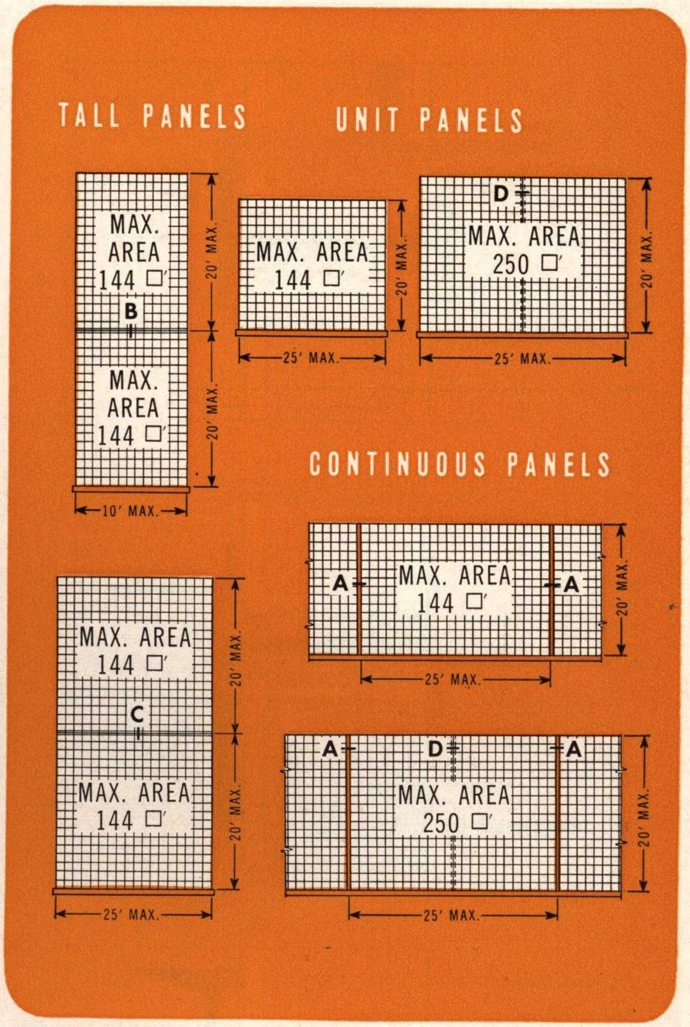
⑦ Anchor panels at jambs by setting into rebates formed by chase, or use O-I Anchors every third horizontal joint.

⑧ Tool joints and give blocks preliminary cleaning before mortar reaches final set.

⑨ Pack oakum on both sides of chases at jambs and head. Calk these joints with mastic to depth of at least $\frac{3}{8}''$.

⑩ Give panel final cleaning. All blocks have a special, transparent chemical finish for quick and easy cleaning.

panel size and area



Chase Construction

Sizes: Max. Length—25 Ft., Max. Height—20 Ft. Panels over these limiting dimensions shall be divided by mullions, detail "A" or shelf angles, details "B" or "C", to provide expansion joints and reinforcement against wind pressure. (Page 10).

Areas: 144 Sq. Ft. (without stiffener)—250 Sq. Ft. (using stiffener detail "D"). Panels over these areas to be reinforced with mullions; detail "A", or shelf angles, details "B" or "C". (Page 10).

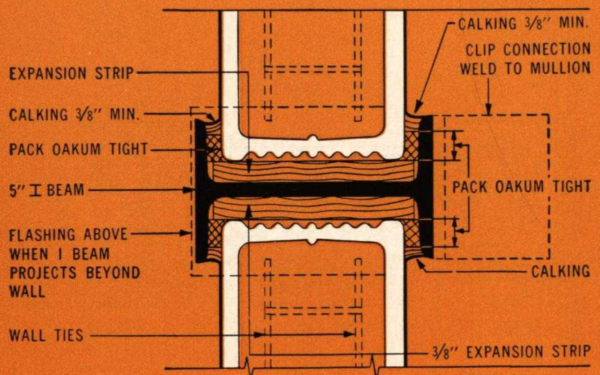
Wall Anchor Panels

Wall anchor-type panels (panels not set in chases at jambs) should not be more than 10 feet wide or 100 square feet in area.

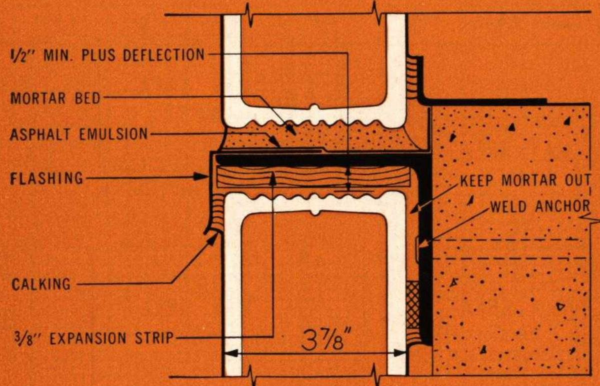
Fire-Retardant Panels

To qualify for Underwriters' Laboratories light fire retardant rating for Class F Openings, panels must not exceed 12 feet in width or height nor 120 square feet in area. Special details required for fire-retardant construction. Available upon request.

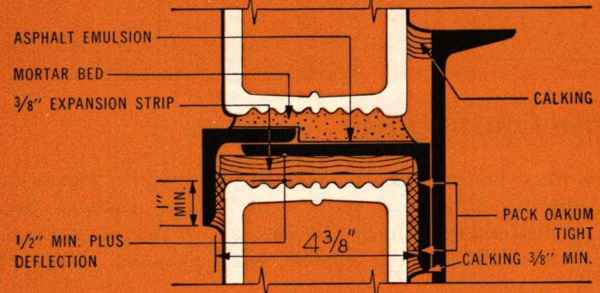
reinforcing large panels



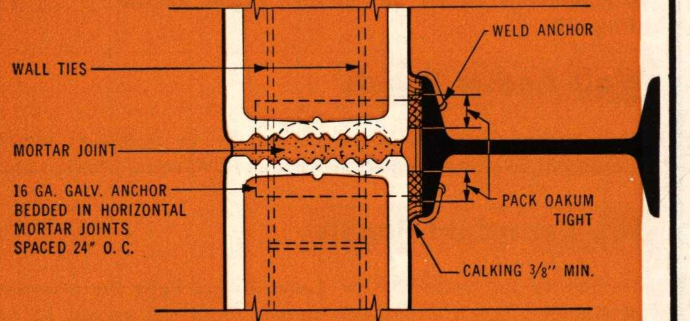
MULLION "A"



SHELF ANGLE "B"

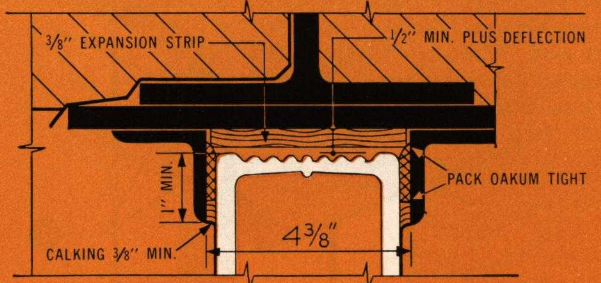


SHELF ANGLE "C"

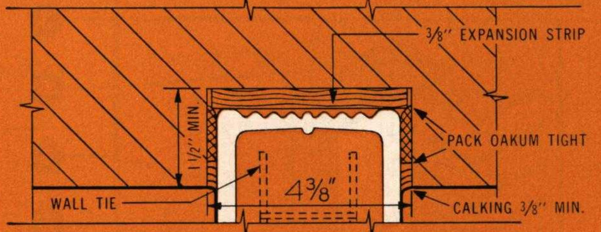

WALL TIES
MORTAR JOINT
16 GA. GALV. ANCHOR BEDDED IN HORIZONTAL MORTAR JOINTS SPACED 24" O. C.
WELD ANCHOR
PACK OAKUM TIGHT
CALKING 3/8" MIN.

STIFFENER "D"

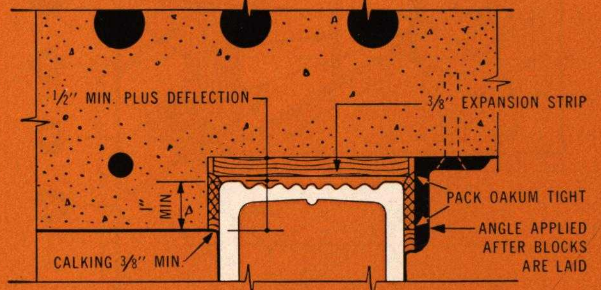
12" walls



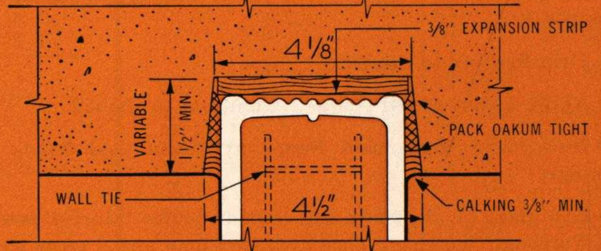
HEAD (Masonry) *



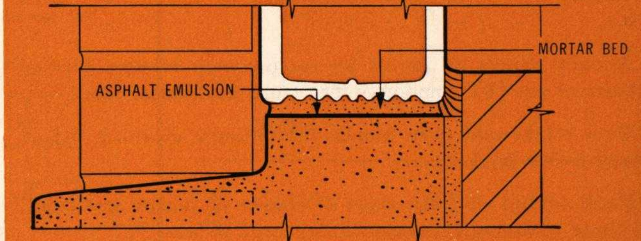
JAMB (Masonry)


1/2" MIN. PLUS DEFLECTION
3/8" EXPANSION STRIP
PACK OAKUM TIGHT
1" MIN.
ANGLE APPLIED AFTER BLOCKS ARE LAID
CALKING 3/8" MIN.

HEAD (Concrete)



JAMB (Concrete)

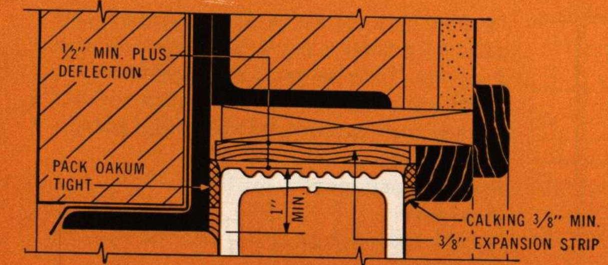


SILL

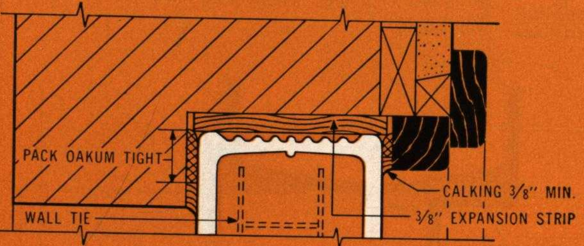
***Flash head through wall as shown in detail on Page 7.**

Scale 3"=1'-0"

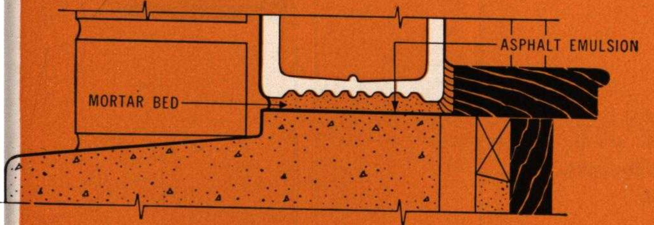
8" walls



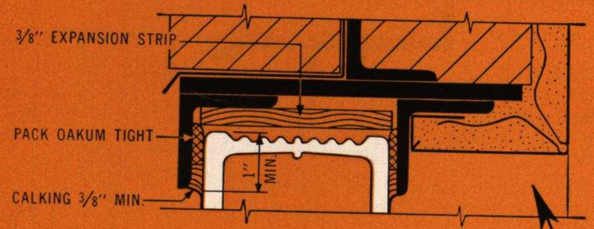
HEAD *



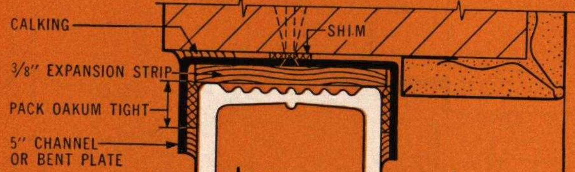
JAMB



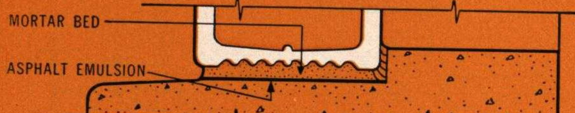
SILL



HEAD *



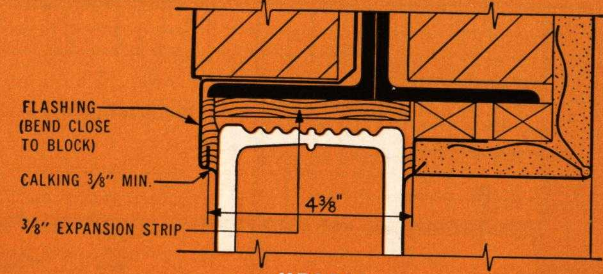
JAMB



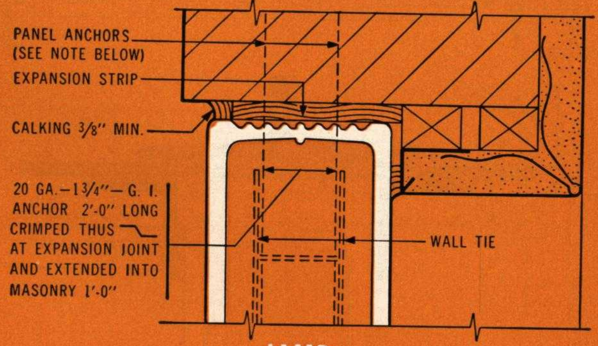
SILL

***Flash head through wall as shown in detail on Page 7.**

small panel details

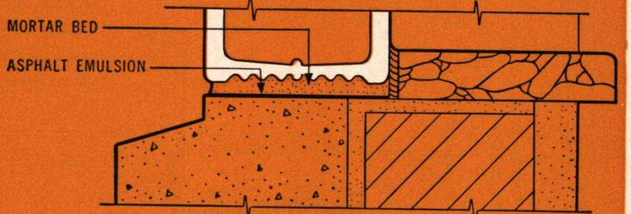


HEAD *

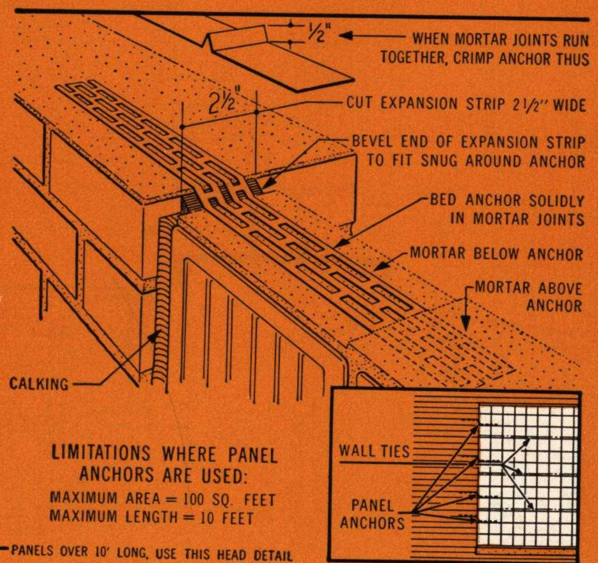


PANEL ANCHORS (SEE NOTE BELOW)
EXPANSION STRIP
CALKING 3/8" MIN.
20 GA.—1¾"— G. I. ANCHOR 2'-0" LONG CRIMPED THUS AT EXPANSION JOINT AND EXTENDED INTO MASONRY 1'-0"
WALL TIE

JAMB



SILL



½"
WHEN MORTAR JOINTS RUN TOGETHER, CRIMP ANCHOR THUS
2½"
CUT EXPANSION STRIP 2½" WIDE
BEVEL END OF EXPANSION STRIP TO FIT SNUG AROUND ANCHOR
BED ANCHOR SOLIDLY IN MORTAR JOINTS
MORTAR BELOW ANCHOR
MORTAR ABOVE ANCHOR
CALKING
WALL TIES
PANEL ANCHORS

LIMITATIONS WHERE PANEL ANCHORS ARE USED:
MAXIMUM AREA = 100 SQ. FEET
MAXIMUM LENGTH = 10 FEET

PANELS OVER 10' LONG, USE THIS HEAD DETAIL

PANEL ANCHOR

***Flash head through wall as shown in detail on Page 7.**

Scale 3" = 1'-0"

glass block and ribbon window standard opening sizes

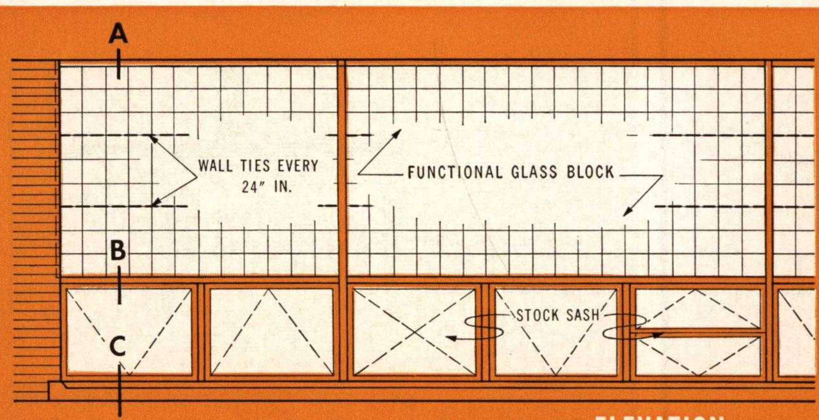
The Glass Block and Ribbon Window Standards Committee has established standards for details and sizes of openings. These two pages show standard opening heights and widths which will receive glass block and ribbon windows. Recommended limiting areas and sizes are as follows:

Max. opening length: 18′–0″

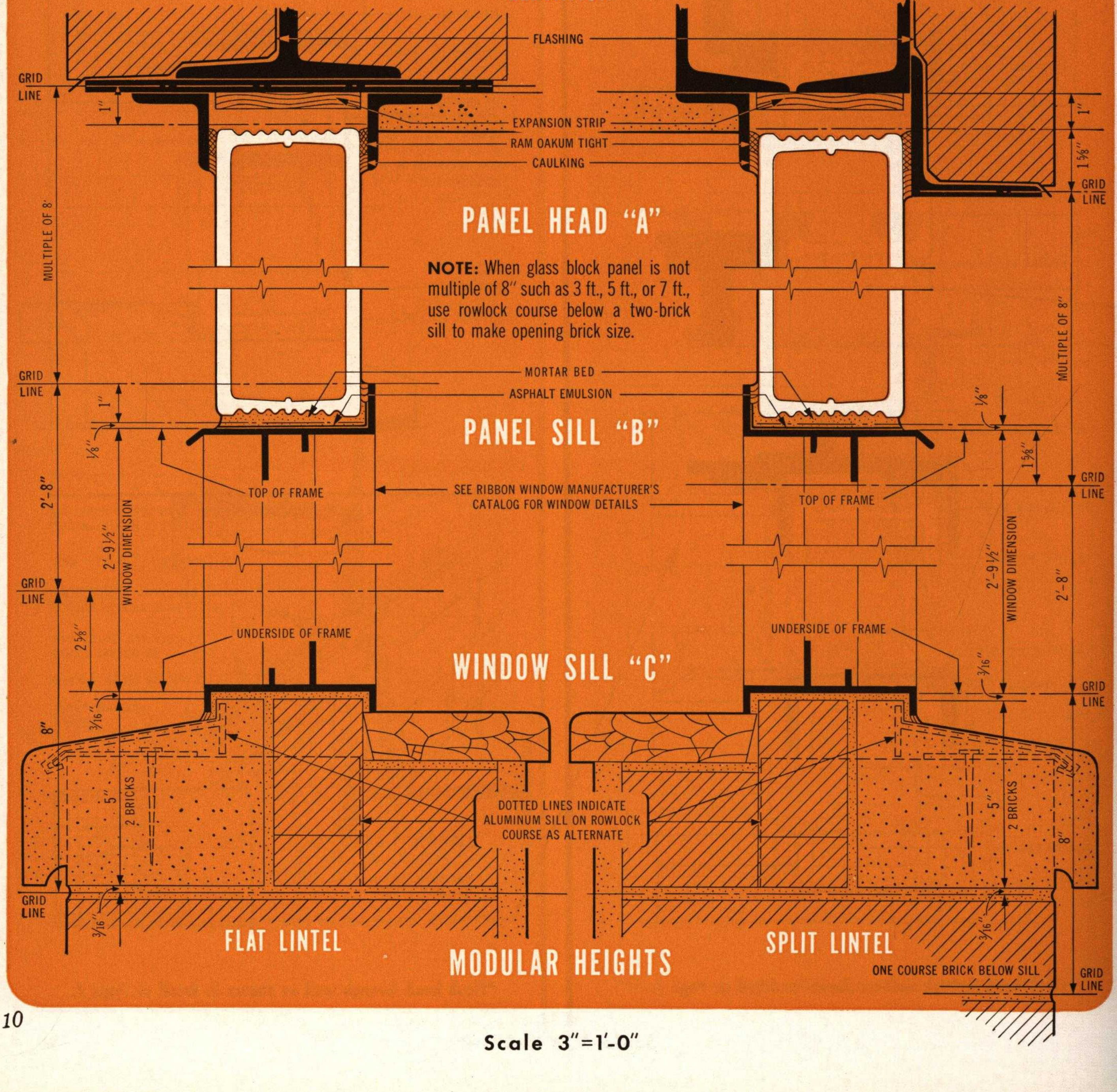
Max. area: 144□′

(includes glass block panel area plus half of ribbon window area)

Max. ventilator size: 4′–0″ x 2′–9½″ high. (windows of greater height shall have two or more ventilators)



ELEVATION



NOTE: When glass block panel is not multiple of 8″ such as 3 ft., 5 ft., or 7 ft., use rowlock course below a two-brick sill to make opening brick size.

MODULAR HEIGHTS

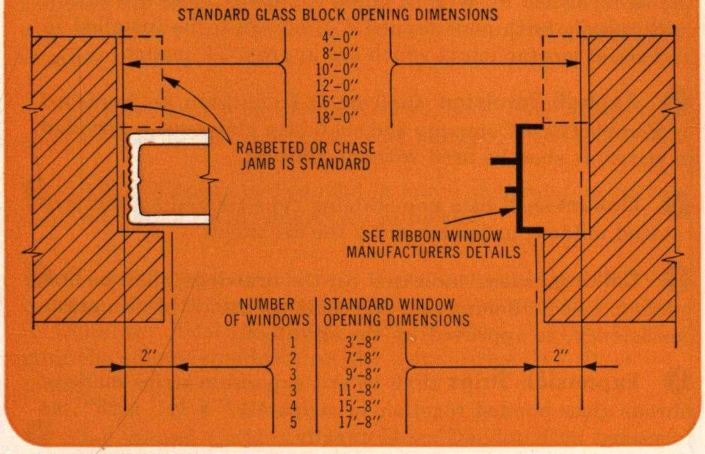
Scale 3″=1′-0″

glass block and ribbon window standard opening sizes

LAYOUT OF OPENING WIDTHS

CASE I - Simple Masonry opening

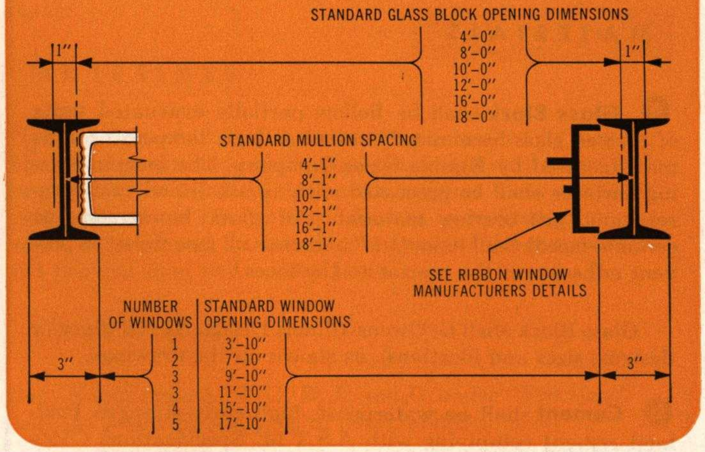
(NO MULLIONS THROUGH GLASS BLOCK)


STANDARD GLASS BLOCK OPENING DIMENSIONS
4'-0"
8'-0"
10'-0"
12'-0"
16'-0"
18'-0"
RABBETED OR CHASE JAMB IS STANDARD
SEE RIBBON WINDOW MANUFACTURERS DETAILS
2"
2"

NUMBER OF WINDOWS	STANDARD WINDOW OPENING DIMENSIONS
1	3'-8"
2	7'-8"
3	9'-8"
3	11'-8"
4	15'-8"
5	17'-8"

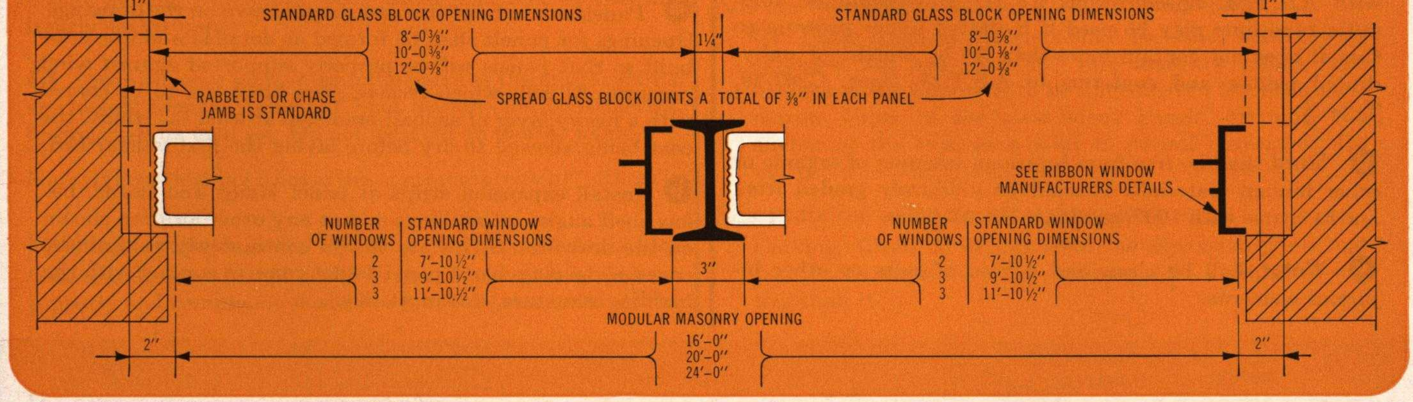
CASE II - Continuous Panels

(BETWEEN I-BEAM MULLIONS)



NUMBER OF WINDOWS	STANDARD WINDOW OPENING DIMENSIONS
1	3'-10"
2	7'-10"
3	9'-10"
3	11'-10"
4	15'-10"
5	17'-10"

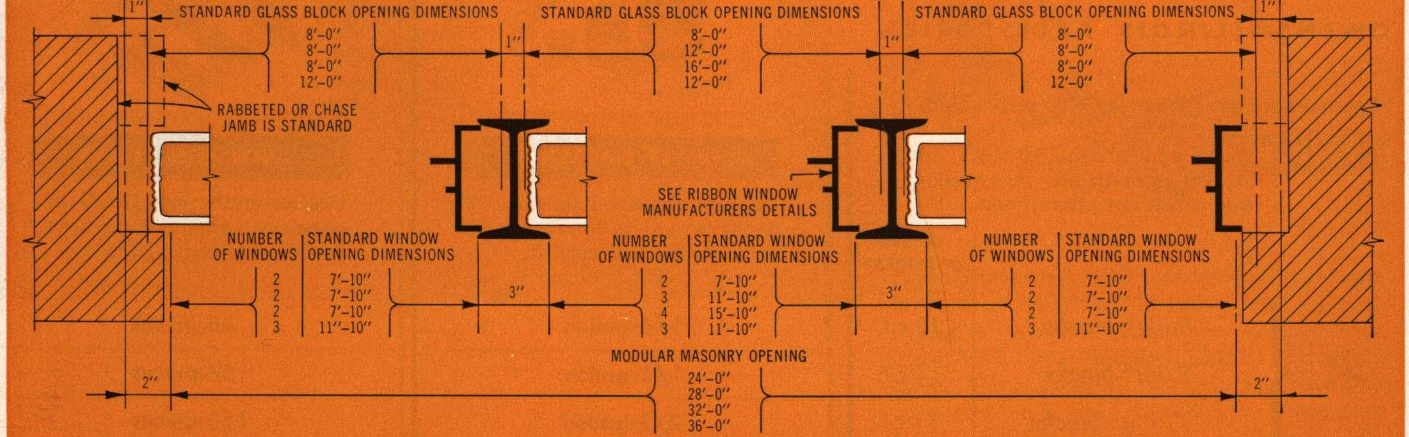
CASE III A - Divided Masonry opening (WITH ONE MULLION THROUGH GLASS BLOCK PANEL)


1"
STANDARD GLASS BLOCK OPENING DIMENSIONS
8'-0⅜"
10'-0⅜"
12'-0⅜"
1¼"
STANDARD GLASS BLOCK OPENING DIMENSIONS
8'-0⅜"
10'-0⅜"
12'-0⅜"
1"
RABBETED OR CHASE JAMB IS STANDARD
SPREAD GLASS BLOCK JOINTS A TOTAL OF ⅜" IN EACH PANEL
SEE RIBBON WINDOW MANUFACTURERS DETAILS
3"
MODULAR MASONRY OPENING
16'-0"
20'-0"
24'-0"
2"
2"

NUMBER OF WINDOWS	STANDARD WINDOW OPENING DIMENSIONS
2	7'-10½"
3	9'-10½"
3	11'-10½"

NUMBER OF WINDOWS	STANDARD WINDOW OPENING DIMENSIONS
2	7'-10½"
3	9'-10½"
3	11'-10½"

CASE III B - Divided Masonry opening (WITH TWO MULLIONS THROUGH GLASS BLOCK PANELS)


1"
STANDARD GLASS BLOCK OPENING DIMENSIONS
8'-0"
8'-0"
8'-0"
12'-0"
1"
STANDARD GLASS BLOCK OPENING DIMENSIONS
8'-0"
12'-0"
16'-0"
12'-0"
1"
STANDARD GLASS BLOCK OPENING DIMENSIONS
8'-0"
8'-0"
8'-0"
12'-0"
1"
RABBETED OR CHASE JAMB IS STANDARD
SEE RIBBON WINDOW MANUFACTURERS DETAILS
3"
3"
MODULAR MASONRY OPENING
24'-0"
28'-0"
32'-0"
36'-0"
2"
2"

NUMBER OF WINDOWS	STANDARD WINDOW OPENING DIMENSIONS
2	7'-10"
2	7'-10"
2	7'-10"
3	11"-10"

NUMBER OF WINDOWS	STANDARD WINDOW OPENING DIMENSIONS
2	7'-10"
3	11'-10"
4	15'-10"
3	11'-10"

NUMBER OF WINDOWS	STANDARD WINDOW OPENING DIMENSIONS
2	7'-10"
2	7'-10"
2	7'-10"
3	11"-10"

***See Pages 8 and 9 for Glass Block Jamb Details in 8" and 12" Walls.**

closed specifications

General Conditions of the contract are hereby made, by reference, a part of this specification.

Scope: This work consists of furnishing all materials, labor and services necessary for the complete installation of all glass block as shown on the drawings or as specified hereinafter.

MATERIALS

ⓐ **Glass Block** shall be hollow partially evacuated units of pressed glass hermetically sealed at high temperatures, as manufactured by Kimble Glass Company. The mortar-bearing surfaces shall be precoated with an alkali and moisture-resistant, grit-bearing material. All glass blocks (except ceramic-faced) shall have O-I "MAGICLEAN" face finish to prevent adhesion of the mortar to the faces.

Glass Block shall be Owens-Illinois Design No. 00 (Specify designs, sizes and locations) as shown on the drawings.

ⓑ **Cement** shall be waterproof, high early-strength Portland cement complying with A.S.T.M. Specifications C150-49 Type III.

ⓒ **Lime** shall be high-calcium hydrated lime complying with A.S.T.M. Specifications C6-31. Magnesium or dolomitic type lime may be used if hydrated under pressure so that it does not contain more than 8% by weight of unhydrated oxides, and conforms to A.S.T.M. Spec. C207-49, Type S.

ⓓ **Sand** shall be free from injurious amounts of organic or other foreign materials. It shall be uniformly graded from fine to coarse with 100% passing a No. 12 sieve.

ⓔ **Water** shall be clean and devoid of salts or other injurious elements.

ⓕ **Mortar-Mix** shall be composed of 1 part Portland cement, 1 part lime and 4 parts sand, measured by volume. It shall be mixed to a consistency as stiff and dry as possible and still retain good working characteristics. Do not use setting accelerators or anti-freeze compounds.

ⓖ **Reinforcing Wall Ties** shall be O-I galvanized wire ties as furnished by Kimble Glass Company. Ties are to run continuously with ends lapped 6″ and are to be installed in horizontal mortar joints which are approx. 24″ apart.

ⓗ **Asphalt Emulsion** shall be O-I emulsion as furnished by Kimble Glass Company and shall be a clay type suspended in water. It shall be used without diluting.

ⓘ **Oakum** shall be a non-staining type treated against dry rot and mildew, as approved by the architect.

ⓙ **Calking,** where indicated on the drawings, shall be first quality, non-hardening and non-staining mastic of gun grade consistency, as approved by the architect.

ⓚ **Expansion Strips** shall be O-I expansion strips made of fibrous glass bonded together in strips 4⅛″ x ⅜″ x 25″, as furnished by Kimble Glass Company.

ERECTION

ⓐ Panels are to be of size and shape shown on the drawings. Openings for panels shall be formed as detailed and are to be built so that panels will be properly supported against wind pressure. All sills which receive glass block are to be coated with a heavy layer of asphalt emulsion at least 1/16″ thick, the coat being allowed to dry before laying the first mortar bed.

ⓑ Install expansion strips at panel jambs and heads, below shelf angles, at mullions and at any other location shown on the drawings. Strips are to run continuously so that the edges of the glass block panel do not come in contact with the building structure, except at sills.

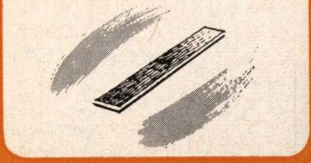
OWENS-ILLINOIS ACCESSORIES

***Approximate quantity to lay 1000 pieces block**

Based upon a panel 10′ x 10′ (100 Sq. Ft.). Conditions vary widely; quantities not guaranteed.

ASPHALT EMULSION

Asphalt dispersed in water. Apply to sill to break bond between sill and mortar.



EXPANSION STRIPS

Use at jambs and heads of panels. A resilient glass fiber pad 4⅛″ x ⅜″ x 25″.

		VOLUME OF MORTAR		
*	*5 3/4″ blocks*	22 c.f.	1/6 gallon	38 pieces
	7 3/4″ blocks	14 c.f.	1/3 gallon	67 pieces
	11 3/4″ blocks	11 c.f.	2/3 gallon	150 pieces
	how packed		1, 5 gallons, quarts	72 pcs. (150 lin. ft.) to cart'n

ⓒ Blocks shall be laid plumb, true and level with all mortar joints filled completely with mortar. Do not furrow or feather joints. Each block shall be laid by shoving it tightly against the adjacent one so that the mortar fills all the corrugations and bonds with both blocks. Do not move blocks apart to widen the joints after they are laid. If necessary to realign the block, remove it and put on more mortar and re-lay. Exposed thickness of mortar joints shall be ¼″ unless otherwise shown on drawings. Do not allow mortar to lodge in expansion joints.

O-I functional type Blocks Nos. 80, 80-F, 80G, and 80GF shall be laid in the wall exactly as marked, TOP-INSIDE.

ⓓ Wall ties are to be installed in joints as heretofore specified, imbedding them completely in mortar.

ⓔ Tool the exposed surfaces of the mortar joints to a slightly concave, smooth, non-porous surface after mortar reaches its initial set. Tool the mortar back ⅛″ from the face to expose the square shoulders on the glass. Use a ⅜″ diameter jointer.

ⓕ Oakum and Calking. Pack oakum between the faces of the block and the sides of the chases after the mortar has set. Ram the oakum back at least ⅜″ from the finished surface. Fill the recesses thus formed at jambs and head of panels with mastic calking compound, both inside and out, to provide tightly sealed panels.

ⓖ Clean all loose mortar from the panel as the mortar joints are tooled. Final cleaning shall not be done until the mortar has reached its final set. Do not use acid on mortar joints.

Note: If final cleaning is not in this contract specify by "others".

Flashings (Specify under "Masonry" or "Sheet Metal".) Lintels, spandrels or parapets above glass block panels shall be properly and completely flashed to prevent entrance of water.

Alternate Specifications For Anchored Panels

This specification to be used where glass block panels are not set in chases or frames at the jambs. This method not recommended for large panels or those subjected to severe conditions. (See Details.)

Add the following paragraph to those listed under "Materials" above:

MATERIALS

Panel anchors shall be O-I anchors (as furnished by Kimble Glass Company) made of 20 gauge perforated steel strips, 24″ long by 1¾″ wide, galvanized after forming. They are to be used as shown on the drawings, located in horizontal mortar joints as frequently as wall ties, but not in the same course and not less than two to each jamb.

ERECTION

Copy paragraphs A, B, C, D, E and G under "Erection".
Add the following sentence to paragraph B:

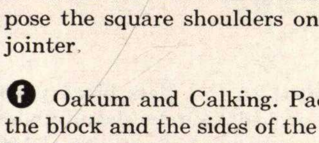
> Cut standard expansion strips to width shown on drawings to provide at least ½″ space for calking exposed expansion joints.

Add the following paragraph B1 after paragraph B:

> B1. Panel Anchors. Anchors shall be either bolted to or extended not less than 10″ into masonry jambs. The balance of the anchor is to be imbedded in the horizontal mortar joints of the glass block panels, crimping the anchor at the expansion joint to permit movement. Do not use wire wall ties as anchors.

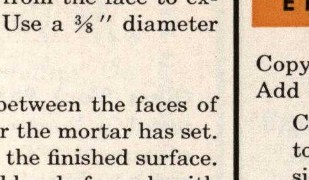
Substitute the following for paragraph F:

> Calking. Clean all mortar from the expansion joints and point with mastic calking compound to a depth of not less than ½″.



PANEL ANCHORS

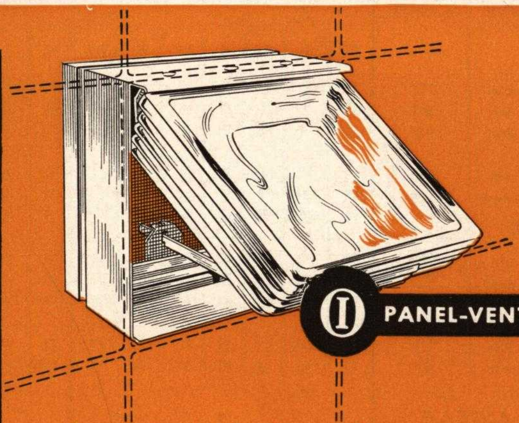
Anchor panels where no chase is used. Imbed in, nail or bolt to jambs. 20 ga. galv. 1¾″ x 24″.



WALL TIES

To reinforce panels. Imbed in horizontal mortar joints every 24″ vertically, regardless of size of block.

Panel Anchors	Wall Ties
20 pieces	13 pieces
36 pieces	23 pieces
80 pieces	100 pieces
25 to bundle	8'0″ long, 50 to bundle



PANEL-VENT

A prefabricated, adjustable ventilator unit made with actual half of standard O-I block. Frame is extruded aluminum; unit is furnished with weathertight gasket, removable screen. Panel-Vent is laid up in mortar along with rest of panel. Available in matching block designs, but only in the nominal 8″ size.

Underwriters' Approval

Owens-Illinois Glass Block panels have Underwriters' Laboratories approval for panels subject to light fire exposure (Class F Openings, 45 minutes). 6″ and 8″ Owens-Illinois blocks are approved. Fire panels must be set in masonry chases and have Owens-Illinois wire wall ties in each course. Either steel or reinforced concrete lintels may be used. See Page 7 for limiting sizes.

Weight Per Square Foot

The weight of Owens-Illinois panels installed is approximately 20 lbs. per sq. ft. For design purposes this is the same for all sizes of block.

Mortar Bond

Owens-Illinois Glass Blocks have a resilient bond coat to insure tight joints between the mortar and glass.

Face Finish

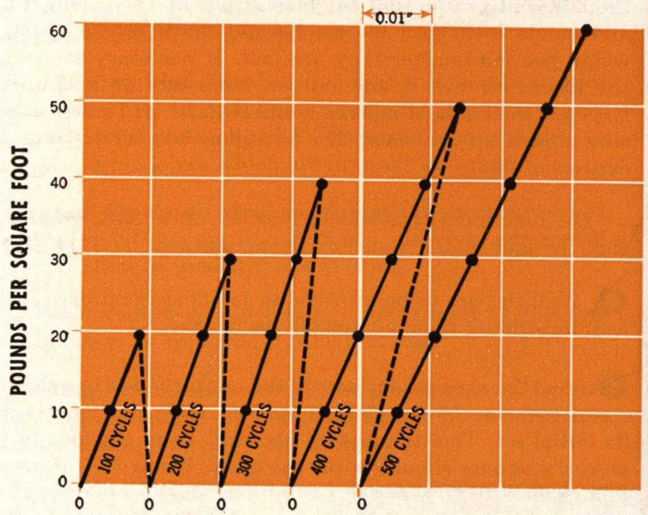
Both faces of all (except ceramic-faced) Owens-Illinois glass block have a transparent nonremovable chemical finish to prevent adhesion of the mortar to the glass. This reduces time and labor required for cleaning the panels.

Structural Strength

Panels of Owens-Illinois Glass Block will carry 400 to 600 lbs. per sq. in. of gross bearing area in direct compression. Although the strength of glass is high in direct compression, panels of glass block should not be used for load-bearing purposes. They will carry their own weight and combined stresses due to wind load with an adequate factor of safety for all recommended panel heights and widths. See page 9.

Lateral Strength

Wind pressure tests show that Owens-Illinois Glass Block panels constructed in accordance with standard specifications and details and within the size limits shown on Page 9 will safely resist wind loads of 20 lbs. per sq. ft.



Glass Block Panel Elasticity: An O-I glass block panel tested at Purdue University proved entirely elastic under pressure of 40 lb. per sq. ft. (equal to wind velocity of 115 m.p.h.). Final failure occurred at pressure equal to a 174 m.p.h. wind. The chart above shows successive results at end of each 100 cycles of pressure—up to 500 cycles.

Solar Heat Gain

Total Instantaneous Rates of Heat Gain of Owens-Illinois Glass Block Panels in B. T. U./hr./sq. ft.

Sun Time	*Dry Bulb Temp.*	*Block Design Nos. 307, 316, 331, 370*							*Block Design No. 340*						
		NE	E	SE	S	SW	W	NW	NE	E	SE	S	SW	W	NW
8 am	77	57	113	70	8	6	6	6	55	109	65	8	6	6	6
9 am	80	40	94	76	17	8	9	8	39	85	71	16	8	9	8
10 am	83	22	67	69	29	10	12	11	21	65	67	28	10	12	11
11 am	87	14	44	56	39	14	14	13	14	43	55	39	14	14	13
12 noon	90	16	24	41	42	24	16	15	16	24	41	42	24	16	15
1 pm	93	18	22	23	46	49	27	17	18	22	23	46	48	26	17
2 pm	94	18	23	18	42	74	59	19	18	23	18	41	72	57	20
3 pm	95	18	23	18	33	93	102	37	18	23	18	32	88	93	36
4 pm	94	17	21	17	23	94	136	66	17	21	17	23	89	127	64
5 pm	93	16	19	16	19	81	142	91	16	19	16	19	77	132	86
6 pm	91	13	15	13	15	54	104	81	13	15	13	15	52	101	78
ASHAE Type No.		I							II						

Note: For humid industrial atmospheres these figures may be reduced by 20 per cent for all types of glass block in east and west walls and 5 per cent in south walls.

Corrections for deviations from indoor and outdoor design temperatures: For each degree the design room temperature exceeds 75 degrees F., subtract 0.5 B. T. U. from each value; for each degree the design outdoor temperature exceeds 95 degrees F., add 0.5 B. T. U.

Block Design No. 80-F		
EAST	SOUTH	WEST
70	36	75

The above figures show the approximate instantaneous rates of heat gain of O-I solar-selecting glass block No. 80-F. The figures show the maximum heat gain for each of the three sun exposures; East, West and South. The maximum occurs on the East at 9:00 A.M., on the South at 1:00 P.M. and on the West at 4:00 P.M. The above data are in B.T.U. per hour per square feet for clear atmospheres for August 1st, 40° North latitude and for an 80° indoor temperature. The figures are results of calculations since the solar-selecting blocks have not been tested for solar heat gain by the ASHAE Laboratory.

For Clear Atmospheres, August 1, 40 degrees North latitude, 75 degrees F. indoor temperature.

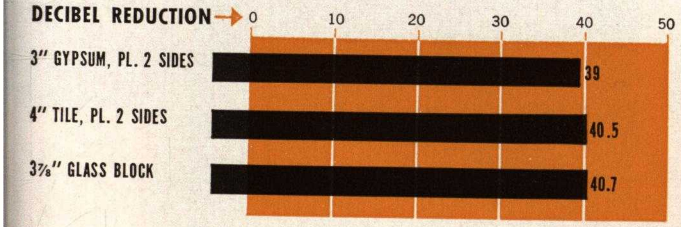
Data from test by ASHAE Laboratory and reported in the "GUIDE".

physical data

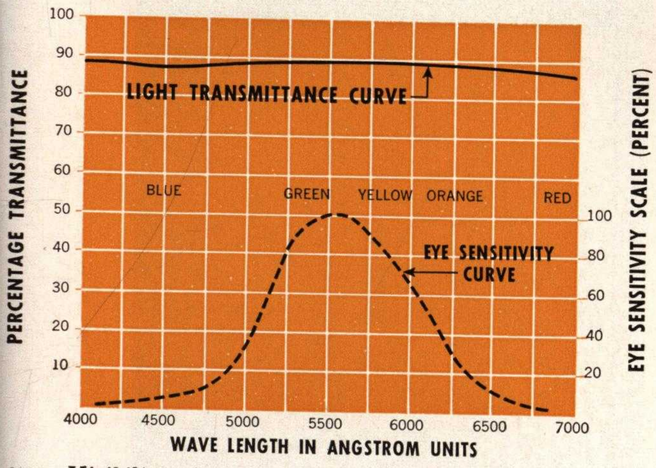
OWENS-ILLINOIS GLASS BLOCK

Sound Reduction

Glass block panels have an average sound reduction factor of 40.7 decibels over nine frequencies (128 to 4096 cycles).



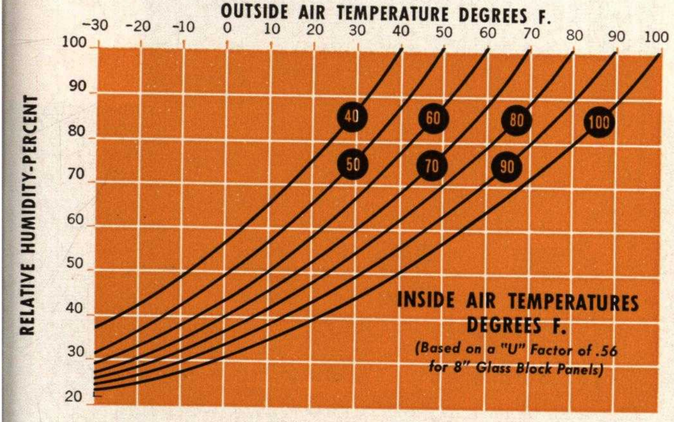
Spectral Transmittance



Note: *Visibility of average normal eye ranges from 4100 to 6900 angstrom units as shown on eye sensitivity curve.*

This curve shows that light through the glass in O-I clear Glass Blocks is relatively true in color to the original light, the per cent transmittance being about constant for all wave lengths.

Surface Condensation

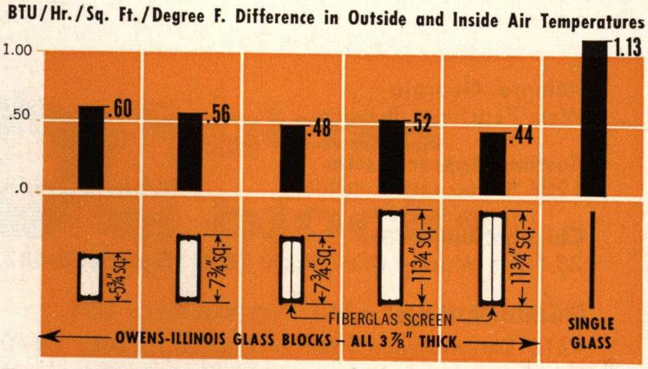


This chart shows outside air temperatures required to form condensation on the room side surface of Owens-Illinois Glass Block panels at various inside temperatures and relative humidities. Because of higher insulating value than single-glazed windows, glass block permit higher humidities without condensation.

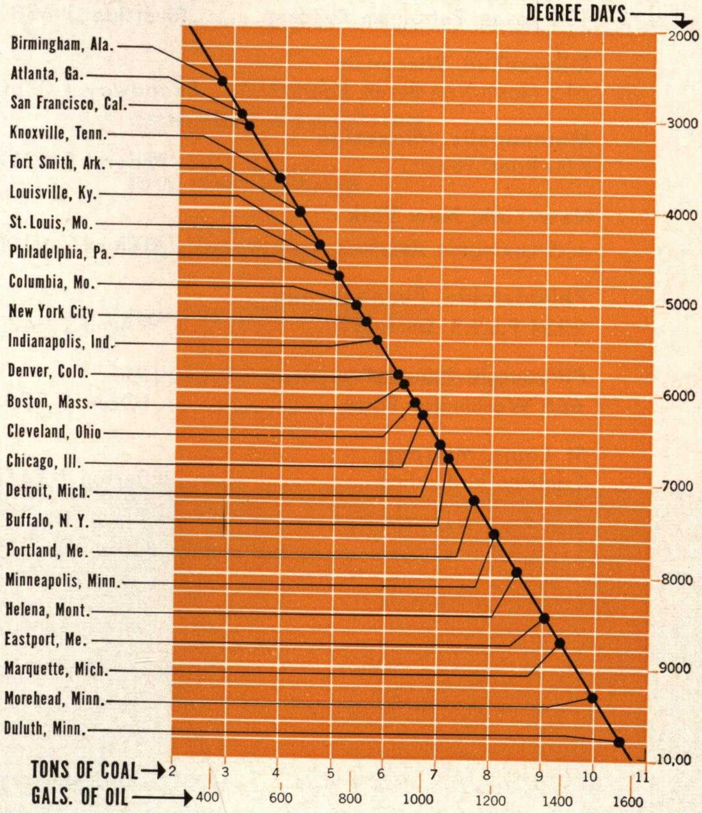
For the same per cent relative humidity, condensation will not occur on glass block panels until the outside air has reached a much lower temperature than necessary for single-glazed windows.

Heat Loss

The coefficients of heat transmission, U factor, for Owens-Illinois Glass Block walls are shown below for various designs and sizes of blocks. All O-I Blocks are hermetically sealed, providing a dead air space with ⅔ vacuum. This results in the low conductivity of the walls. Blocks with fiber glass inserts have slightly lower U factors as shown.

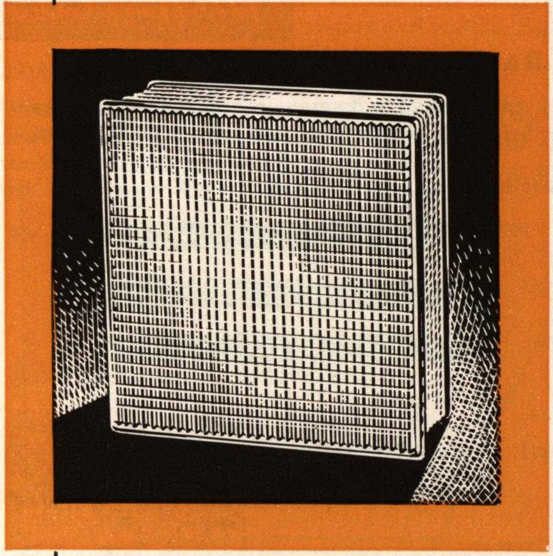


Fuel Savings



This chart shows fuel savings which can be attained by using panels of O-I Glass Block instead of single-glazed metal windows. Figures based on glass areas of 1,000 sq. ft. These calaculations based upon heat transmission and infiltration through glass areas only

Calculations based upon the following factors: U-value Sash 1.13; U-value Glass Block, 0.56; 12,000 BTU per pound of coal burned at 65 per cent efficiency; 141,000 BTU per gallon of oil burned at 70 per cent efficiency.



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OWENS-ILLINOIS GLASS BLOCK IS MANUFACTURED AND SOLD BY KIMBLE GLASS COMPANY, A SUBSIDIARY OF OWENS-ILLINOIS

GLASS BLOCK, THINLITE AND TOPLITE
THREE (I) PRODUCTS

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